Weekly Report

Yuxin Ma

2017.10.01 - 2017.10.06

1 VIS Special

1.1 People

The people met in VIS are categorized into the following classes:

1.1.1 New Students/Friends

Students that have not met before:

- Yu Bowen (New York University)
- Liu Dongyu (HKUST)
- Fu Siwei (HKUST)
- Wang Junpeng (Ohio State University)
- He Wenbin (Ohio State University)
- Qu Zening (UW)
- Wu Tongshuang (UW)
- Liao Yangguang (UC Davis)
- Wang Yun (HKUST, maybe going to Ant Financial)
- Yang Fumeng (Brown University)
- Liu Yang (UW)
- Students in Ross's group(VADER Lab) : Lu Yanfeng (Postdoc), Wang Hong (PhD), Zhang Rui (PhD), Michael Steptoe (Master), Prannoy Chandra (Master)
- Shehzad Afzal (Purdue University)
- Students in Wang Yunhai's group from Shandong University: Li Guozheng, Zhang Haifeng
- Liu Le (Clemson University)
- Wang Xiaoyi (University of Copenhagen)
- Liu Zipeng (University of British Columbia)

1.1.2 New Professors/Experts

Professors or experts that have not met before:

- Cheng Zhanglin (Shenzhen Institutes of Advanced Technology, CAS)
- Chen Baoquan
- Yang Wang (Uber)
- Ren Liu (Bosch Research)
- Leland Wilkinson (H2O.ai): Discussed with him about my deep learning project. He introduced H2O.ai that he just enrolled in.
- David Ebert
- Wu Yanhong (IBM Watson; HKUST)
- Chou Jia-kai (UC Davis)

1.1.3 Old Students/Friends

Students that have known each other before:

- Chen Siming (Peking University)
- Lai Chufan (Peking University)
- Cheng Shenghui (New York University)

1.1.4 Known Professors/Experts

Professors/experts that have known each other before:

- In China: Qu Huamin, Liu Shixia, Yuan Xiaoru
- Issei Fujishiro (Keio University): Working on high-dimensional visualization with PCPs
- Zhang Xiaolong (Penn State)

1.1.5 Deeply-connected Professors/Experts

Professors or experts that have established some collaboration:

- Ross Maciejewski: Will send some materials on his new projects

1.2 Activities

The most valuable sessions that I joined are listed below. The take-home messages are recorded as well.

- Vis+ML Tutorial
  - Everyone is talking about machine learning nowadays.
  - Unsupervised learning methods are still quite weak now.
  - For manifold/projection methods, how to explain the projection results is still a problem. How can you make your projection trusted by users?
- Panel: How do Recent Machine Learning Advances Impact the Data Visualization Research Agenda?
  - Even tSNE will cheat you: random data can also form some small clusters.
  - Machine learning models are still biased like humans do: training data comes from people.
  - "Opening the black box" is a lie: 1. the box is open for ML experts; 2. Human is not that smart to open the black box of ML models, especially deep neural networks.
  - We need to think about the position of visualization: is it just a affiliated tool to other domains?
  - How can you trust a machine learning model via visualization? (Even more, is visualization deserved to be trusted?)

2 Projects

2.1 PhD Thesis

Currently I am translating the deep learning project and the community detection project into Chinese. Another 3 to 5 days are necessary for finishing the thesis.

2.2 Deep Learning on Trajectory Data

- Model Implementation I discussed with Kezhi Kong today about the taxi data and implementation of models. We planned to implement the stacked auto-encoder described in [1] and try if it works.

Table 1: Plan for the Next Week

Target Date	Project	Progress	Problems
10.20	PhD Thesis	Translating the deep learning and the community detection work	
12.30	Deep learning and trajectories		
Before VIS 2018	Visualizing Reinforcement Learning Algorithms	Still planning	Maybe further literature review

References

[1] Y. Lv, Y. Duan, W. Kang, Z. Li, and F. Y. Wang, "Traffic Flow Prediction With Big Data: A Deep Learning Approach," IEEE Transactions on Intelligent Transportation Systems, vol. 16, no. 2, pp. 865–873, 2014.